

We claim:

- 1 1. A method of providing device control to at least one device component, said device
2 control enabling interaction of a data network service with said at least one device
3 component, said method comprising:
 - 4 communicating with said at least one device component;
 - 5 logically associating a selection of said at least one device component in an aggregate
6 logical device;
 - 7 maintaining a logical model of said aggregate logical device; and
 - 8 providing access to said data network service by representing said selection of said at
9 least one device component to said data network service as said aggregate logical
0 device.
- 1 2. The method of claim 1 wherein said maintaining said logical model comprises
2 maintaining a state of each of said selection of said at least one device component in said
3 logical model.
- 1 3. The method of claim 1 wherein said communicating uses a stimulus message format.
- 1 4. The method of claim 3 wherein said stimulus message format employs the Megaco
2 Protocol.
- 1 5. The method of claim 3 wherein said stimulus message format employs the Session
2 Initiation Protocol (SIP).
- 1 6. The method of claim 3 wherein said stimulus message format employs the H.323
2 protocol.
- 1 7. The method of claim 1 wherein said maintaining said logical model further comprises
2 dynamically adding a given device component to said logical model.
- 1 8. The method of claim 1 wherein said maintaining further comprises dynamically removing
2 a given device component from said logical model.

1 9. The method of claim 1 wherein a server of said data network service is physically
2 associated with at least one of said selection of said at least one device component.

1 10. The method of claim 1 wherein said representing further comprises:

2 encapsulating a message destined for a server of said data network service to result in
3 an encapsulated message; and

4 sending said encapsulated message to at least one of said selection of said at least one
5 device component for forwarding to said server of said data network service.

1 11. The method of claim 1 wherein said data network service is a first data network service
2 and wherein said providing comprises:

3 executing a first data network service adapter application corresponding to a server of
4 said first data network service; and

5 logically associating said first data network service adapter application with said
6 aggregate logical device.

1 12. The method of claim 11 further comprising:

2 providing access to a second data network service by representing said selection of
3 said at least one device component to said second data network service as said
4 aggregate logical device; and

5 where said providing includes executing a second data network service adapter
6 application corresponding to said server of said second data network service and
7 logically associating said second data network service adapter application with said
8 aggregate logical device.

1 13. The method of claim 12 further comprising routing, as necessary, said communicating
2 with said at least one device component to an appropriate one of either said first data network
3 service adapter application or said second data network service adapter application.

1 14. The method of claim 12 wherein said providing comprises:

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2 executing a compound data network service adapter application comprising a logical
3 association of:

4 said first data network service adapter application corresponding to said server
5 of said first data network service; and

6 a second data network service adapter application corresponding to said server
7 of said second data network service; and

8 logically associating said compound data network service adapter application with
9 said aggregate logical device.

1 15. The method of claim 14 wherein said server of said first data network service is
2 functionally associated with said server of said second data network service.

1 16. The method of claim 11 wherein said representing further comprises:

2 receiving an encapsulated message, containing a message from a server of said data
3 network service, from at least one of said selection of said at least one device
4 component; and

5 de-encapsulating said encapsulated message for forwarding to said first data network
6 service adapter application.

1 17. The method of claim 12 further comprising enforcing visibility rules for mediating said
2 communication with said at least one device component as said communication relates to said
3 first data network service adapter application and said second data network service adapter
4 application.

1 18. The method of claim 1 wherein said at least one device component is a plurality of device
2 components.

1 19. The method of claim 18 wherein at least one of said plurality of device components is
2 connected to a data network.

1 20. The method of claim 18 further comprising:

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2 logically associating at least one device component of said plurality of device
3 components in a second aggregate logical device; and
4 maintaining a second logical model of said second aggregate logical device.

1 21. The method of claim 20 further comprising providing access to said data network service
2 by representing said at least one device component of said plurality of device components to
3 said data network service as said second aggregate logical device.

1 22. The method of claim 20 further comprising providing access to a second data network
2 service by representing said at least one device component of said plurality of device
3 components to said second data network service as said second aggregate logical device.

1 23. The method of claim 18 wherein a given device component of said selection of said
2 plurality of device components is a primary network intelligence for providing device control
3 to further ones of said plurality of device components.

1 24. The method of claim 23 wherein communication with said primary network intelligence
2 uses a stimulus message format.

1 25. The method of claim 24 wherein said stimulus message format employs the Megaco
2 Protocol.

1 26. The method of claim 23 wherein, upon loss of communication with said primary network
2 intelligence, said method further comprises:

3 communicating with said further ones of said plurality of device components;

4 logically associating said further ones of said plurality of device components with one
5 another as a second aggregate logical device;

6 maintaining a second logical model of said second aggregate logical device; and

7 providing access to said data network service by representing said further ones of said
8 plurality of device components to said data network service as said second aggregate
9 logical device.

1 27. The method of claim 1 wherein said providing comprises:

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2 converting an indication of a change in a state of said logical model of said aggregate
3 logical device into a request of said data network service; and
4 sending said request to said data network service.

1 28. The method of claim 27 wherein said providing comprises:

2 receiving a response to said request of said data network service;
3 generating an interpretation of said response; and
4 providing instructions, based on said interpretation, to change said state of said logical
5 model of said aggregate logical device.

1 29. The method of claim 28 wherein said response comprises a media flow and, responsive to
2 said interpretation of said response, said communicating further comprises sending said
3 media flow to a given device component of said selection of said at least one device
4 component.

1 30. The method of claim 29 wherein said generating said interpretation further comprises,
2 before said sending, converting said media flow from a format in which said media flow was
3 received to a format understood by said given device component of said selection of said at
4 least one device component.

1 31. The method of claim 28 wherein said response comprises a data file and, responsive to
2 said interpretation of said response, said communicating further comprises sending said data
3 file to a given device component of said selection of said at least one device component.

1 32. The method of claim 31 wherein said generating said interpretation further comprises,
2 before said sending, converting said data from a format in which said data file was received
3 to a format understood by said given device component of said selection of said at least one
4 device component.

1 33. The method of claim 27 wherein sending said request to said data network service further
2 comprises instructing said data network service to direct a response to a given device
3 component of said selection of said at least one device component.

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1 34. The method of claim 1 wherein said aggregate logical device comprises a logical device
2 element corresponding to each of said at least one device component and wherein a given
3 logical device element corresponds to a particular device component and a device type of said
4 given logical device element is different from a device type of said particular device
5 component.

1 35. The method of claim 34 wherein said device type of said logical device element is
2 "pointing device" and said device type of said particular device component is "microphone".

1 36. The method of claim 35 further comprising using speech recognition to convert a
2 message received from said "microphone" device type to a state change of said "pointing
3 device" device type.

1 37. A network intelligence for providing device control to at least one device component, said
2 network intelligence comprising:

3 a message driver for communicating with said at least one device component;

4 a resource context manager for:

5 logically associating a selection of said at least one device component in an
6 aggregate logical device;

7 maintaining a logical model of said aggregate logical device; and

8 a service adapter for representing said selection of said at least one device component
9 to said data network service as said aggregate logical device to provide access to said
10 data network service.

1 38. A computer readable medium containing computer-executable instructions which, when
2 performed by a processor in a network intelligence for providing device control to at least
3 one device component, cause the processor to:

4 communicate with said at least one device component;

5 logically associate a selection of said at least one device component in an aggregate
6 logical device;

maintain a logical model of said aggregate logical device;
represent said selection of said at least one device component to said data network service as said aggregate logical device to provide access to said data network service.

39. A method of sending a message from a device component to a server of data network services comprising:

receiving an encapsulated message at said device component;
de-encapsulating said encapsulated message to result in a message destined for said server; and
sending said message to said server.

40. At a device component, a method of receiving a message from a server of data network services comprising:

receiving said message;
encapsulating said message to result in an encapsulated message; and
sending said encapsulated message to an interpreter of said message.

41. A communication system, comprising:

a plurality of devices connected to a data network; and
a network intelligence connected to said data network for providing device control to said plurality of devices and, where said data network is also connected to a data network service, for providing access to said data network service by representing selected ones of said plurality of devices to said data network service as an aggregate logical device.

42. The communication system of claim 41 wherein said selected ones of said plurality of devices form a user interface and said selected ones of said plurality of devices are geographically distributed.

1 43. The communication system of claim 41 wherein said data network service is a functional
2 component associated with at least one device of said selected ones of said plurality of
3 devices.

1 44. A method of providing device control to at least one device component, said device
2 control enabling interaction of a stand-alone service with said at least one device component,
3 said method comprising:

4 communicating with said at least one device component;

5 logically associating a selection of said at least one device component in an aggregate
6 logical device;

7 maintaining a logical model of said aggregate logical device; and

8 providing access to said stand-alone service by representing said selection of said at
9 least one device component to said stand-alone service as said aggregate logical
10 device.

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